



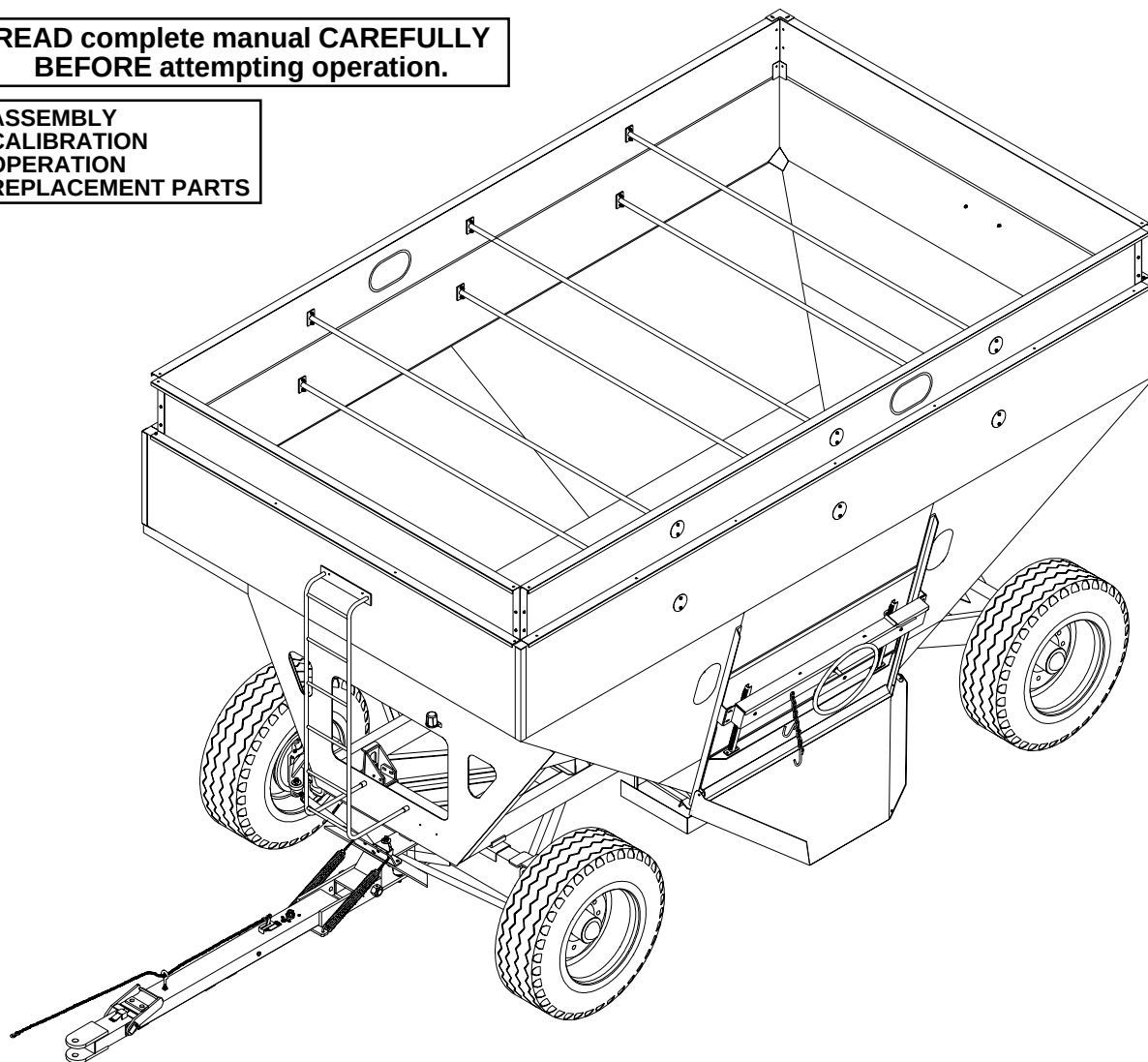
Dethmers Manufacturing Company

DOING OUR BEST TO PROVIDE YOU THE BEST

550, 650, & 750 BUSHEL GRAVITY FLOW WAGON **OPERATORS MANUAL**

READ complete manual CAREFULLY
BEFORE attempting operation.

ASSEMBLY
CALIBRATION
OPERATION
REPLACEMENT PARTS



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INTRODUCTION

Thank you for purchasing a Demco Gravity Flow Wagon. We feel you have made a wise choice and hope you are completely satisfied with your new piece of equipment. Proper care and use will result in many years of service.



WARNING: TO AVOID PERSONAL INJURY OR DEATH, OBSERVE FOLLOWING INSTRUCTIONS:

Never overload wagon. Do not exceed the rating of the gear or load rating of the tires, whichever is less.

Ensure that anybody present is clear before applying power to any machinery used in conjunction with wagon box or when moving box.

Never allow anyone in, near, or on gravity box during transporting or unloading of grain. Moving grain is dangerous and can cause entrapment, resulting in severe injury or death by suffocation.

Do not exceed 20 miles per hour when towing wagon.

GENERAL INFORMATION

1. Unless otherwise specified, high-strength (grade5) (3 radial-line head markings) hex head bolts are used throughout assembly of this piece of equipment.
2. Whenever terms "**LEFT**" and "**RIGHT**" are used in this manual it means from a position behind wagon box and facing forward.
3. When placing a parts order, refer to this manual for proper part numbers and place order by **PART NO. and DESCRIPTION.**
4. Read assembly instructions carefully. Study assembly procedures and all illustrations before you begin assembly. Note which parts are used in each step. This unit must be assembled in proper sequence or complications will result.

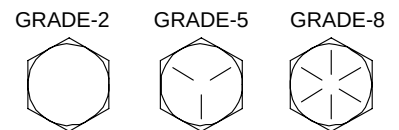
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Torque Specifications

Torque figures indicated are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%. *GRADE or CLASS value for bolts and capscrews are identified by their head markings.



BOLT TORQUE TORQUE DATA FOR STANDARD NUTS, BOLTS, AND CAPSCREWS.

Tighten all bolts to torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt chart as guide. Replace hardware with same grade bolt. NOTE: Unless otherwise specified, high-strength Grade 5 hex bolts are used throughout assembly of equipment.

Bolt Torque for Metric bolts *

A	CLASS 8.8		CLASS 9.8		CLASS 10.9	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
6	9	(13)	10	(14)	13	(17)
7	15	(21)	18	(24)	21	(29)
8	23	(31)	25	(34)	31	(42)
10	45	(61)	50	(68)	61	(83)
12	78	(106)	88	(118)	106	(144)
14	125	(169)	140	(189)	170	(230)
16	194	(263)	216	(293)	263	(357)
18	268	(363)	--	--	364	(493)
20	378	(513)	--	--	515	(689)
22	516	(699)	--	--	702	(952)
24	654	(886)	--	--	890	(1206)

CLASS 10.9



CLASS 9.8



CLASS 8.8



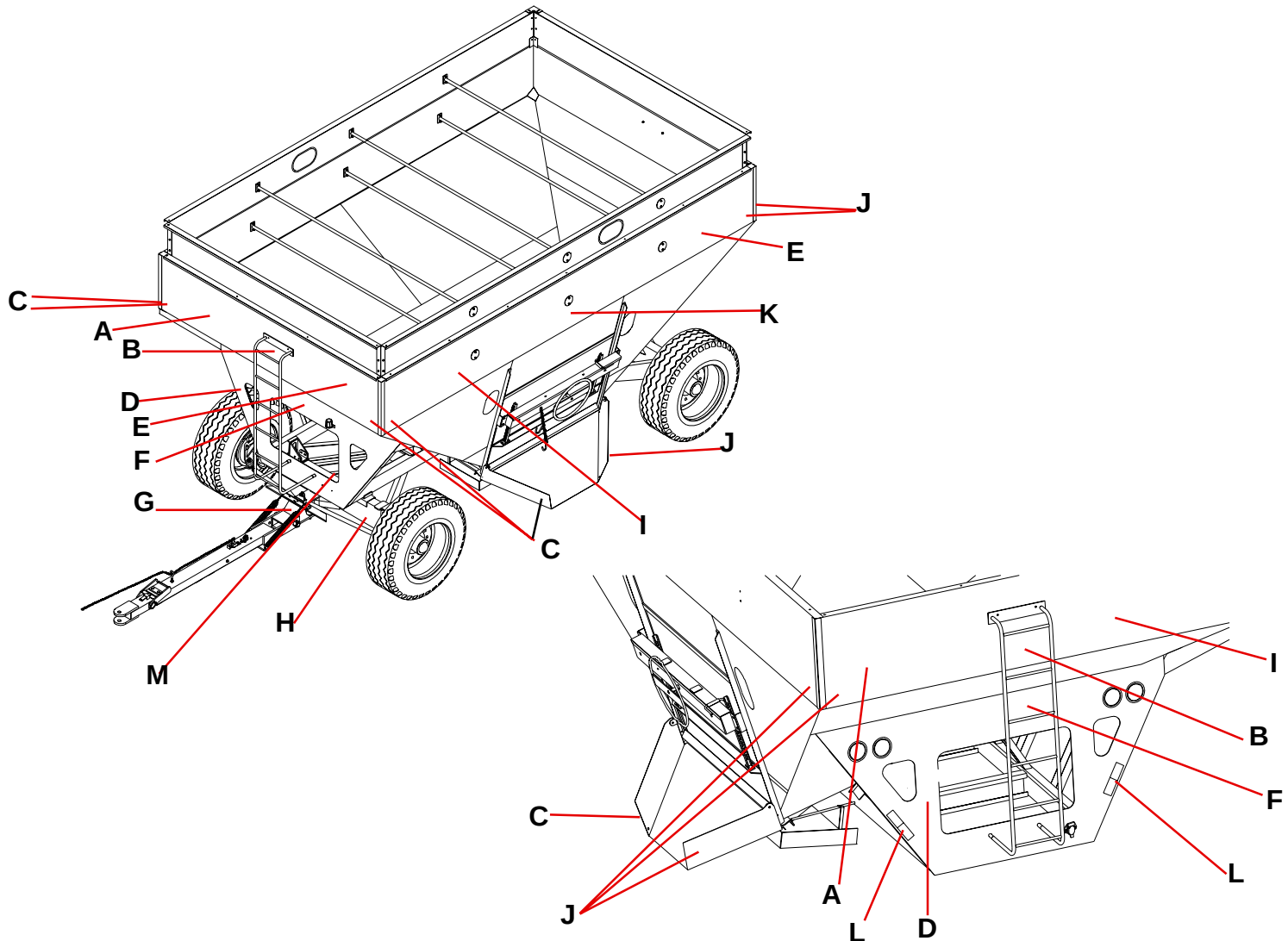
Bolt Torque for Standard bolts *

"A"	GRADE 2		GRADE 5		GRADE 8	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
1/4"	6	(8)	9	(12)	12	(16)
5/16"	10	(13)	18	(25)	25	(35)
3/8"	20	(27)	30	(40)	45	(60)
7/16"	30	(40)	50	(70)	80	(110)
1/2"	45	(60)	75	(100)	115	(155)
9/16"	70	(95)	115	(155)	165	(220)
5/8"	95	(130)	150	(200)	225	(300)
3/4"	165	(225)	290	(390)	400	(540)
7/8"	170	(230)	420	(570)	650	(880)
1"	225	(300)	630	(850)	970	(1310)



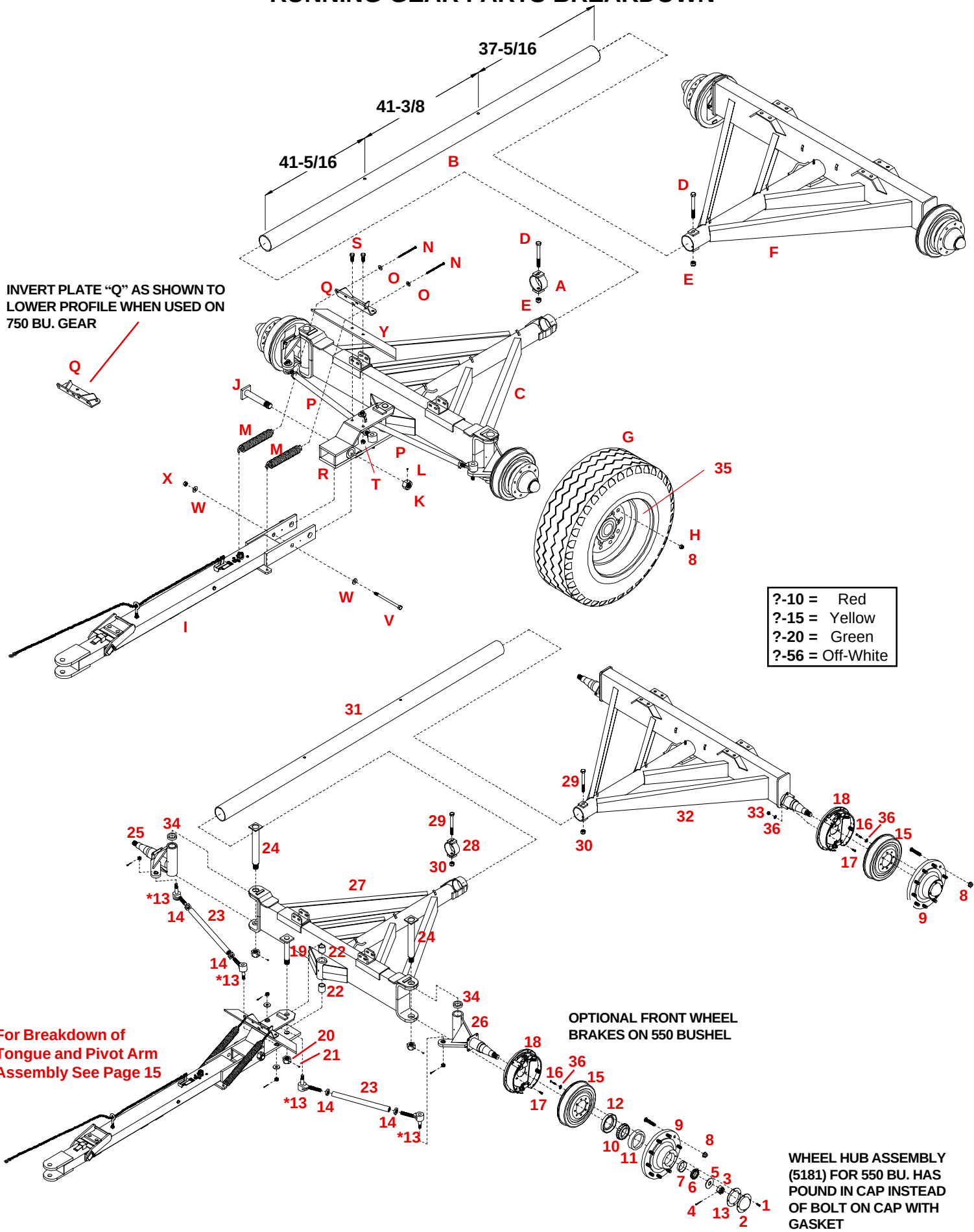
SAFETY SIGN LOCATIONS

Types of safety sign and locations on equipment are shown in illustration below. Good safety requires that you familiarize yourself with various safety signs, type of warning, and area or particular function related to that area, that requires your SAFETY AWARENESS.



A	AG21045	550 yellow	F	AG21019	Demco (medium) yellow	
	AG21047	550 off white		AG21027	Demco (medium) off white	
	AG21017	650 yellow		G	AG21070	Attention Do not turn sharply
	AG21025	650 off white			H	AG21002
	AG21018	750 yellow		I		AG21031
	AG21026	750 off white			J	04804
B	AG21067	Keep off ladder	K	AG21020	Large Demco (yellow)	
C	04508	Amber reflector		AG21028	Large Demco (off white)	
D	AG21068	Just 4 Kids	L	07278	Conspicuity (with white to the top)	
E	AG21030	Left mirage stripe (Qty. 3)		M	AA21028	Manual inside(on plastic canister)

RUNNING GEAR PARTS BREAKDOWN



RUNNING GEAR PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
	5474	4	Wheel Hub Assembly (650 & 750 BU.)
1.	04305	4	5/16"-18 UNC x 1/2" Hex Head Bolt Gr. 5
2.	07362	1	Hub Cap
3.	07353	1	1-1/4"-12 UNF Castle Nut
4.	05088	1	7/32" x 2" Lg. Cotter Pin
5.	07354	1	1.32" I.D. x 3.00" O.D. Flatwasher
6.	07358	1	Outer Cone Bearing (460)
7.	07360	1	Outer Cup (453A)
8.	07435	10	3/4" Flanged Wheel Nut
9.	-	1	10 Bolt Hub (W871) (NOT SOLD SEPERATELY)
-	07861	-	3/4"-16 UNF Stud Bolt (replacement)
10.	07357	1	Inner Cone Bearing (39585)
11.	07359	1	Inner Cup (39520)
12.	07361	1	Oil Seal (CR30087)
13.	09532	1	Gasket

	5181	4	Wheel Hub Assembly (550 BU.)
2.	01933	1	Hub Cap (NOT SHOWN)
3.	01934	1	1"-14 UNF Castle Nut
4.	01935	1	3/16" x 2-1/2" Lg. Cotter Pin
5.	01936	1	1-1/16" I.D. x 2-1/8" O.D. Flatwasher
6.	01937	1	Outer Cone Bearing
7.	01938	1	Outer Cup
8.	09240	8	5/8"-18 UNF Wheel Nut, Beveled
9.	-	1	8 Bolt Hub (NOT SOLD SEPERATELY)
-	10151	-	5/8"-18 UNF Stud Bolt (replacement)
10.	01942	1	Inner Cone Bearing
11.	01943	1	Inner Cup
12.	01944	1	Oil Seal

*13.	5182	2	Tie Rod End w/Left Hand Threads
*13.	5183	2	Tie Rod End w/Right Hand Threads

*13.	07420	2	Tie Rod End w/Left Hand Threads (750 bu.)
*13.	07421	2	Tie Rod End w/Right Hand Threads (750 bu.)

14.	01948	2	1"-14UNF Jam Nut w/Left Hand Thread
-	01949	2	1"-14UNF Jam Nut w/Right Hand Thread
-	07411	2	1.25"-12UNF Jam Nutw/Left Hand Thread (750 bu.)
-	07412	2	1.25"-12UNF Jam Nut w/Right Hand Thread (750 bu.)
15.	07324	4	13" Brake Drum (650 & 750 Bu.)
-	03532	2-4	13" Brake Drum (550 Bu.) (4 whl. brakes optional)
16.	05031	16	1/2"-20UNFx1-1/4" Bolt Gr.5 (750 /650Qty.24)
17.	02010	16	1/2"-20UNF x 1" Hex Head Bolt Gr. 5
18.	07910	1	Left Brake Cluster (shown)
-	07911	1	Right Brake Cluster (not shown)
19.	01953-30	1	Pivot Arm Mtg. Pin (550 & 650 bu.)
-	07407	1	Pivot Arm Mtg. Pin (750 bu.)
20.	01922	3	Special 1-1/2"-12UNF Hex Nut
21.	01923	3	1/4"-20UNC x 1/4" Socket Set Screw
22.	01951	2	1-1/2" I.D. x 1-7/8" O.D. x 2" Bronze Bushing
23.	07382-?	2	Tie Rod (550 & 650 bu.)
-	07410-?	2	Tie Rod (750 bu.)
24.	09033-?	2	2" Dia. Spindle Mounting Pin
25.	07737-?	1	Right Front Spindle (550 bushel)
-	07364-?	1	Right Front Spindle (650 bushel)
-	07409-?	1	Right Front Spindle (750 bushel)
26.	07736-?	1	Left Front Spindle (550 bushel)
-	07363-?	1	Left Front Spindle (650 bushel)
-	07408-?	1	Left Front Spindle (750 bushel)
27.	07366-?	1	Front Bolster Frame (550 and 650 bu.)
-	07393-?	1	Front Bolster Frame (750 bushel)
28.	01965-30	1	4-1/2" O.D. Collar
29.	01964	2	3/4"-10UNC x 7" Hex Head Bolt Gr. 5
30.	02961	2	3/4"-10UNC Nylon Insert Locknut
31.	01966-?	1	4" O.D. Reach Pipe
32.	07738-?	1	Rear Bolster Frame (550 bushel)
-	07367-?	1	Rear Bolster Frame (650 bushel)
-	07394-?	1	Rear Bolster Frame (750 bushel)
33.	00152	16	1/2"-20 UNF Hex Nut
34.	07356	2	Thrust Bearing
35.	03908-?	4	22.5 x 13.5 10 Bolt Rim (650 & 750 Bu.)
-	04909-?	4	22.5 x 8.25 8 Bolt Rim (550 Bu. only)
36.	00084	16	1/2" Lockwasher

ASSEMBLY INSTRUCTIONS

MOUNTING THE WHEELS, AND ASSEMBLING THE FRONT AND REAR BOLSTER FRAMES

1. Insert the Lock Collar (A) into the opening provided on the Front Bolster Reach Pipe Frame (C). The end of the Reach Pipe (B) with a hole 41-5/16" from the end should slide into the Front Bolster Frame (C). Line up the holes in the Lock Collar and bolt together using one 3/4" x 7" bolt (D) and one 3/4" nylon locknut (E).
2. Insert the Reach Pipe (B) with the hole 37-5/16" from the end into the Rear Bolster Reach Pipe Frame (F) and bolt together using one 3/4" x 7" bolt (D) and one 3/4" nylon locknut (E).
3. Mount the Tire and Rim (G) to the front and rear bolster using forty 3/4" Flanged Wheel Nuts (H) (650 & 750 Bu. only). For 550 Bu. mount using 32 Lug Bolts.

TIGHTEN ALL BOLTS (SEE TORQUE CHART ON PAGE 2.)

INSTALLING THE TONGUE AND THE LIFT ASSIST SPRING

1. Mount the Tongue (I) onto the pivot arm (R), fasten together using one 1-1/2" Dia. x 9" bolt (J) and one 1-1/2" nut (K). Tighten just enough to take out all slack and hold nut in place using one 1/4" x 1/4" socket set screw (L).
2. Insert 5/8"-11 x 9" bolt through tongue as shown using two 5/8" Flatwashers (W), and one 5/8" nylon insert locknut (X). Tighten bolt until all slack is removed between the tongue and pivot arm (R). Do not overtighten, the tongue should still move freely. Raise the tongue and support on a stand.
3. Mount the Lift Assist Plate (Q) through the Steering Stop (Y) onto the top of the Pivot Arm (R) using two 5/8"-11 x 1-3/4" bolts (S) and two 5/8" nylon insert locknuts (T). Plate must be inverted when installed on the 750 bushel box (see note on illustration.)
4. Attach the Lift Assist Springs (M) to the Lift Assist Plate(Q) by threading the two 1/2"-13 x 6" full thread bolts(N) with 1/2" lockwasher(O) into the threaded insert in the springs(O). Tighten the bolts to remove any slack. Remove the stand and adjust the tongue height using the two 1/2" x 6" bolts.

ADJUSTING THE TIE RODS FOR ALIGNMENT

1. Alignment is preset at the factory. To check alignment, the Tie Rods (P) should be adjusted to have 1/4" to 3/8" toe in (measured at tire bead edge of rim). When this adjustment is made, **the tongue must be aligned with the reach pipe.** Be sure both wheels toe in equally.

* This kit includes tie rod end (specify left or right hand threads), grease zerk, rubber cup, cotter pin, castle nut, and flat washer.

Please order replacement parts by **PART NO., DESCRIPTION** and **COLOR.**

NOTE: Parts Listed for 550, 650 & 750 Bu. Wagons.

DEMCO BRAKE TONGUE MAINTENANCE AND ADJUSTMENT

WARNING: Review all of the following instructions before installation and use of the hydraulic brake tongue. Dealers or Distributors must review these instructions with the ultimate user. Failure to follow these instructions, or failure to properly maintain the braking system after installation, can result in loss of braking action which could cause severe property damage, personal injury and/or death.

DISASSEMBLY AND REASSEMBLY

1. The brake tongue is preassembled and adjusted at the factory:

 **CAUTION** Do Not Disassemble or Attempt to Adjust The Tongue Push-Rod Assembly (#11)

To disassemble the tongue: (refer to illustration on page 15)

- A. Remove 3/4" bolts (#8), remove stop block (#7), and pull male tongue (#30) out of female tongue (#1).
- B. Remove 1/2" bolt (#4), pin (#25), and spacer (#27)
- C. Remove set screw (#24) from adjustment spud (#23b), unthread and remove adjustment spud (#23b).
- D. Remove push-off assembly (#28), pin (#29), two shocks (#26), and two springs (#10).
- E. To remove tongue push-rod assembly (#11), master cylinder (#2), emergency lever (#14), pin (#15), spring (#16), and guide (#17), refer to section a&b of "Servicing the Emergency Lever" on this page.

To reassemble the tongue: (refer to illustration on page 15)

- A. Replace 2 shocks (#26) into yoke (#28), with pin (#29).
- B. Place 2 springs (#10), onto shaft of push-off assembly (#28), and insert shaft into female tongue (#1), through hole in plate (shown in exploded view).
- C. Thread adjustment spud (#23b) onto rear threaded portion of push-rod assembly (#28), until the 2 springs (#10) compress to a length of 6-1/2". Install and tighten set screw (#24), using Locktite, into one of the threaded holes of the spud (#23b).
- D. Insert pin (#25) into hole in tongue, through 1 shock (#26), through the spacer (#27), and through the other shock (#26) and tongue. Install and tighten 1/2" bolt, lockwasher, and washer (#4, 5, 6).
- E. Install master cylinder (#2), (refer to c-f of "Servicing Emergency Lever" section on this page).
- F. Thread adjust spud (#23a) onto front threaded portion of push-rod assembly (#28). Insert male tongue (#30), (with latch installed as shown), into female tongue (#1). Install stop block (#7), using 3/4" bolts and lockwashers (#8, #9). Pull male tongue (#30) forward to latched position and adjust spud (#23a) until there is a 3/16" gap between spud (#23a) and rear stop surface of male tongue (#30) see arrow.
- G. Tighten set screw (#24), using Locktite, into hole in spud (#23a).

2. Connect and tighten all brake lines.

3. Fill the Master Cylinder (#2) with DOT 3 or 4 brake fluid.

4. Bleed the brake system using a pressure-type brake bleeder or manually, as follows:
 - a. Remove the two Self-Tapping Screws (#18) and LockWashers (#19) that hold the Lever Guide (#17) and the flat Emergency Lever Spring (#16). Remove the Lever Guide and the Emergency Lever Spring. Using short strokes, pull forward on the Emergency Lever (#14), pumping the Master Cylinder until the brake fluid within the Master Cylinder stops bubbling.
 - b. Attach a bleeder hose to the bleeder valve on one of the wheels (always begin with wheel farthest from the

master cylinder and move toward it). Immerse the other end of the hose into a clean, transparent container partially filled with brake fluid. Loosen the bleeder valve one turn and, watching the hose in the transparent container, use the Emergency Lever to pump the Master Cylinder as long as air bubbles continue to leave the hose. When the bubbles stop, close the bleeder valve, move to the next wheel, and repeat the process until all the brakes have been bled. (Note: Check the fluid level in the Master Cylinder frequently while bleeding the brakes (every 4 or 5 strokes). Refill as necessary to keep the level above half full.)

5. Once bleeding is completed, refill the Master Cylinder and attach the Cap (#20) securely. Replace Emergency Lever Spring, Lever Guide, with Lock Washers and Self-Tapping Screws.
6. Test the brakes by pulling the Emergency Lever (#14) forward until it locks into its first detent position. (The lever should be approximately straight up.) Attempt to rotate the wheels in a forward direction. If any of the wheels rotate, the brakes must be adjusted on that wheel. To adjust the brakes, release the Emergency Lever from its locked position and set the wheel brake adjustment up 2 or 3 notches (refer to instructions on page 18). Repeat the test procedure as necessary.

MAINTENANCE

1. Frequently check the brake fluid level. (Fluid must be approved, clean and uncontaminated.)
2. Inspect the brake tongue and brakes and replace bent, worn or damaged parts.
3. Be constantly aware of the system's braking quality and make periodic checks. Consult a certified brake specialist to make the necessary adjustments and/or repairs. Failure to do so could result in loss of braking.

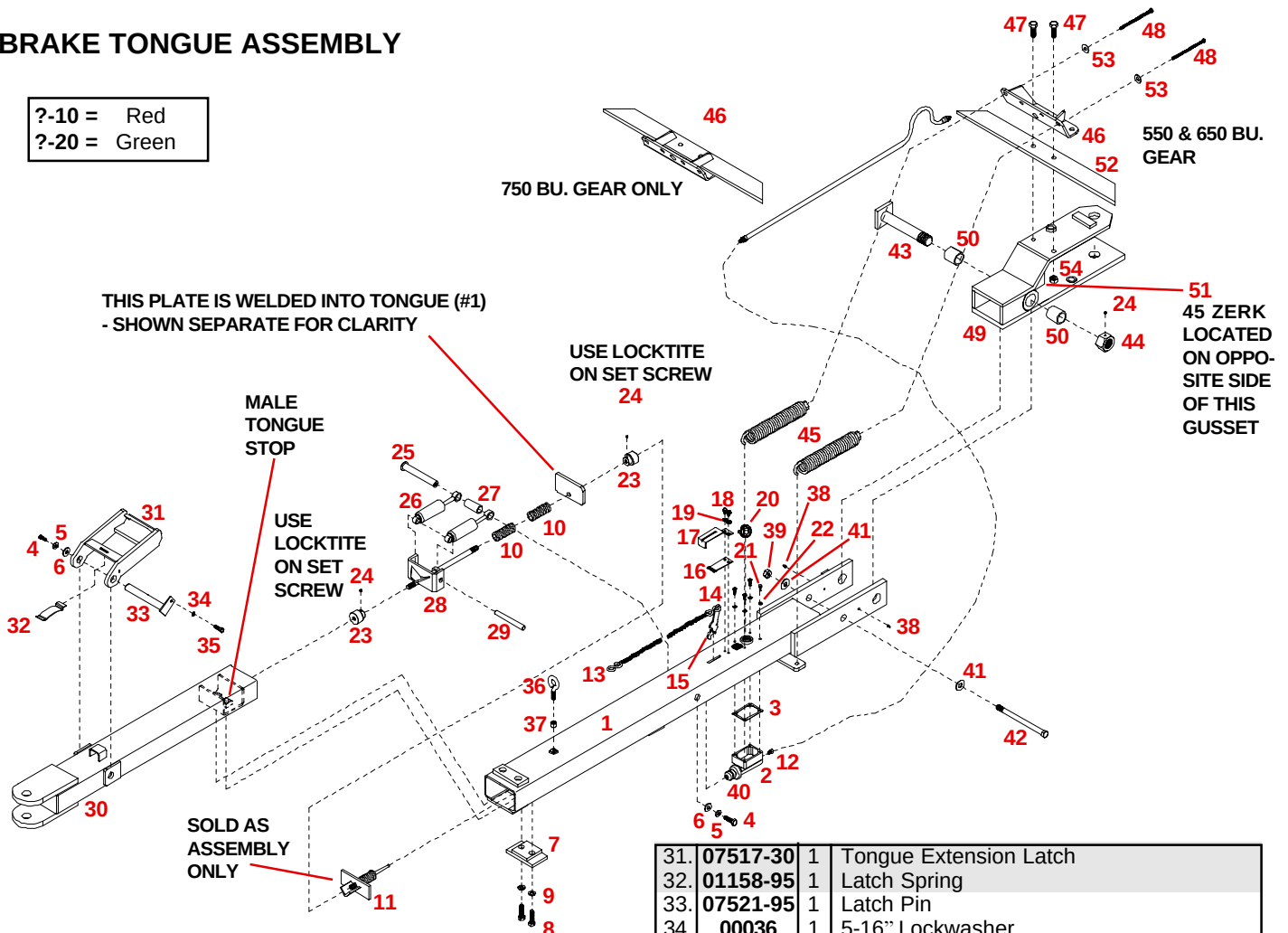
SERVICING THE EMERGENCY LEVER

If the Emergency Lever (#14) of the tongue is applied, it can be disengaged by using a screwdriver to lift upward on the front of the flat Emergency Lever Spring (#16) while pulling the lever forward until it releases. A thorough inspection of the Emergency Lever, Emergency Lever Spring, and the Chain with S-Hooks is required and all damaged parts must be replaced as follows:

- a. Remove the Master Cylinder (#2) and the Push Plate Assembly (#11). Be careful not to get dirt into the Master Cylinder. (A new Master Cylinder Gasket (#3) should be used when reinstalling.)
- b. Remove the Safety Chain from the Emergency Lever (#14), Emergency Lever Guide (#17), and flat Emergency Lever Spring (#16), then pull the lever out of the tongue (#1) from the bottom.
- c. Install the new Emergency Lever from the bottom of , and up through the slot in, the tongue. Attach the new Emergency Lever Spring, and the Emergency Lever Guide.
- d. Install a new Master Cylinder Gasket to the Master Cylinder and put the Push Plate Assembly and Master Cylinder back into the inside of the tongue.
- e. Squeeze shut the S-Hook of the Emergency Chain (#13) onto the Emergency Lever (#14).
- f. Add adequate brake fluid to the Master Cylinder and bleed the brake system per instructions 4-6 in the disassembly and reassembly section.

BRAKE TONGUE ASSEMBLY

?-10 = Red
?-20 = Green



(5628-?) TONGUE ASSEMBLY PARTS LIST

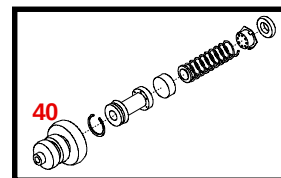
REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	09292-?	1	Adjustable Tongue-Female Half for Brakes
2.	05680	1	Master Cylinder w/ 05681 Gasket Inc'd
3.	05681	-	Master Cylinder Gasket (Inc'd in 05680)
4.	04795	2	1/2"-13 UNC x 1" Gr.5 Bolt
5.	00084	2	1/2" Lockwasher
6.	00085	2	1/2" Flatwasher
7.	09308-30	1	Male Tongue Stop Block
8.	05047	2	3/4"-10 UNC x 2-1/2" Gr. 5 Bolt
9.	00254	2	3/4" Lockwasher
10.	05952	2	Spring
11.	09307	1	Push Plate Assembly
12.	SB12098	1	Orifice Connector for Master Cyl.
13.	09309	1	72" Safety Chain
14.	05951	1	Emergency Lever
15.	05694	1	Groove Pin
16.	05693-95	1	Emergency Lever Spring
17.	03866-95	1	Emergency Lever Guide
18.	02196	2	5/16" -18 UNC x 3/4" Self Tapping Screw
19.	05424	2	5/16" External Tooth Lock Washer
20.	03876	1	Mast. Cyl. Cap w/ diaphragm & O-ring
-	03877	-	Diaphragm Replacement
-	05849	-	O-ring Replacement
21.	01076	4	1/4"-20 UNC x 3/4 Gr.5 Bolt
22.	00057	4	1/4" Lock Washer
23.	09337	2	Adjustment Spud
24.	01923	3	1/4" x 1/4" Socket Set Screw
25.	09325-95	1	Rear Shock Pin
26.	SB12426	2	Shock Dampner
27.	09323	1	Rear Shock Pin Spacer
28.	09305	1	Push-off Assembly
29.	09324	1	Front Shock Pin
30.	09293-?	1	Adjustable Tongue-Male Half

31.	07517-30	1	Tongue Extension Latch
32.	01158-95	1	Latch Spring
33.	07521-95	1	Latch Pin
34.	00036	1	5-16" Lockwasher
35.	01263	1	5/16"-18 UNC x 3/4" Hex Head Bolt Gr.5
36.	09317	1	1/2"-13 x 2" Eye Bolt
37.	00640	1	1/2"-13 Jam Nut
38.	04642	2	1/4"-28 UNF Grease Zerk
39.	02587	1	5/8"-11 Nylon Insert Locknut
40.	05687	1	Master Cylinder Protective Boot
41.	00477	2	5/8" Flatwasher
42.	04835	1	5/8"-11 UNC x 9" Hex Head Bolt
43.	01953-30	1	Tongue Mtg. Pin
44.	01922	1	Special 1-1/2"-12 UNF Hex Nut

REF. NO.	PART NO.	QTY.	DESCRIPTION
45.	00306-30	2	Lift Assist Springs
46.	09326-30	1	Upper Lift Assist Plate (550 & 650 Bushel)
-	10158-30	1	Upper Lift Assist Plate & Steer Stop (750)
47.	04058	2	5/8" - 11 UNC x 2-1/2" Grade 5 Bolt
48.	00545	2	1/2" - 13 UNC x 6" Full Thread Bolt
49.	01954-?	1	Pivot Arm (550-650 Bushel)
-	07406-?	1	Pivot Arm (750 Bushel)
50.	01951	2	Bronze Bushing
51.	05395	1	45 Grease Zerk
52.	09607-30	1	Steering Stop (550 & 650 only)
53.	00085	2	1/2" Flatwasher
54.	02587	2	5/8" - 11 Nylon Insert Locknut

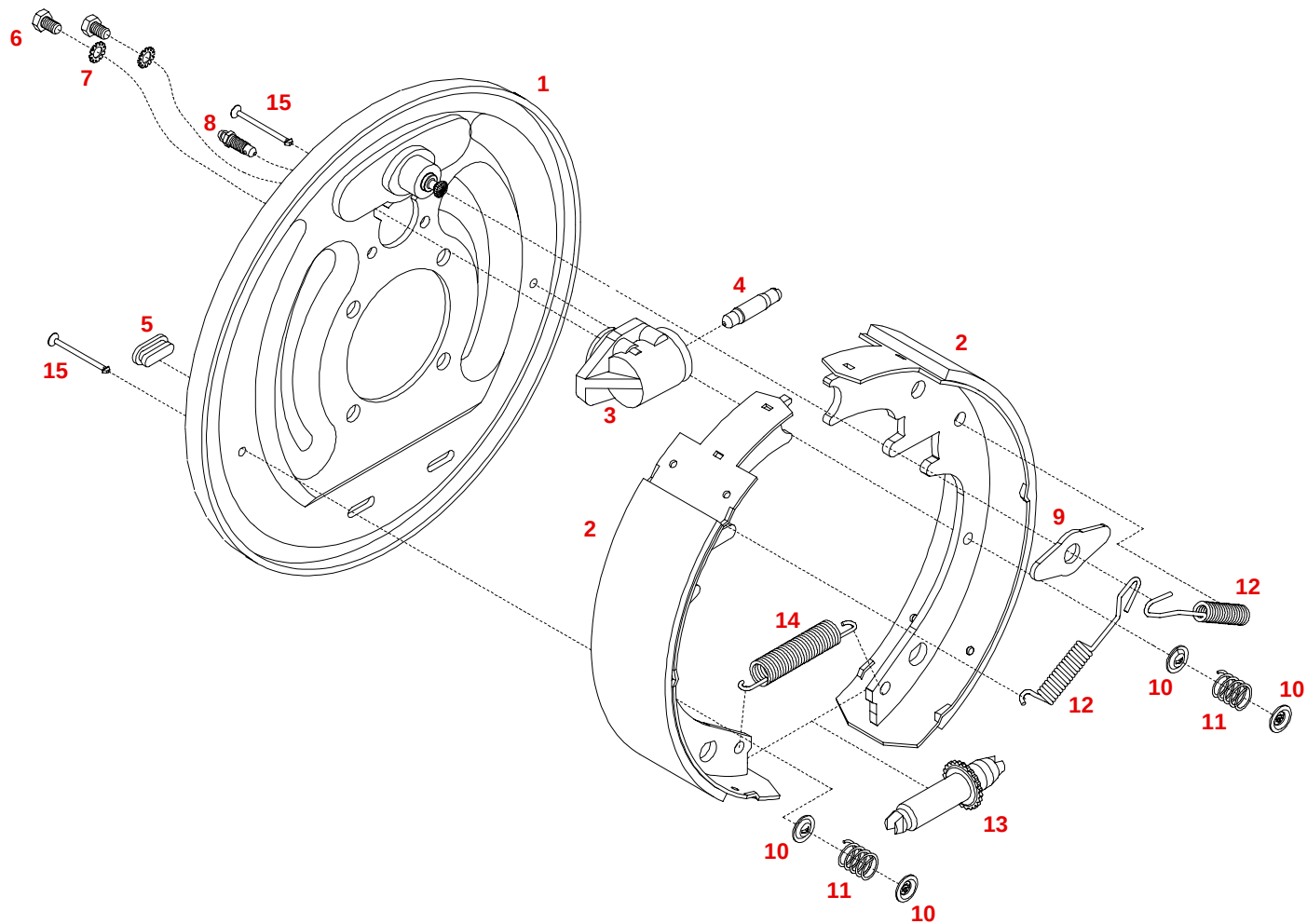
Please order replacement parts by PART NO. and DESCRIPTION.

KIT NUMBERS



- 5398 - Master Cylinder Repair Kit w/gasket

13" UNI-SERVO BRAKE CLUSTER PARTS BREAKDOWN



BRAKE CLUSTER PARTS LIST

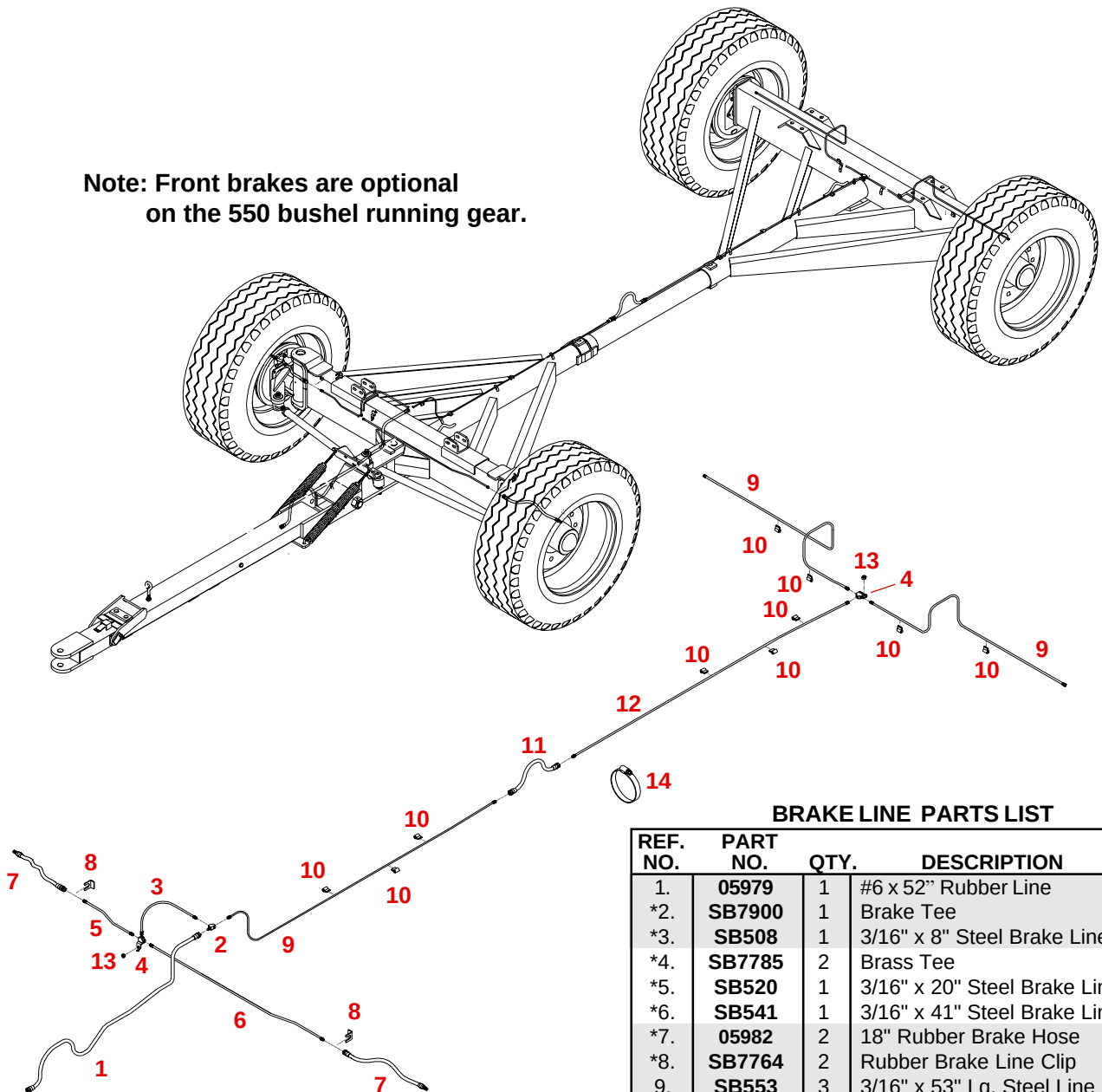
REF. NO.	PART NO.	QTY.	DESCRIPTION
-	07911	-	Right Hand Cluster (shown)
-	07910	-	Left Hand Cluster
1.	03529-30	1	Back Plate Assembly
2.	5509	1	Brake Shoe Kit (2 Front & 2 Rear)
3.	SB9776	1	Wheel Cylinder Assembly - Right (shown)
-	SB9777	1	Wheel Cylinder Assembly - Left
4.	SB9783	1	Push Rod
5.	SB9254	2	Cover Plate - Adjusting Hole
6.	05961	2	5/16"-18UNC x 5/8" Hex Head Bolt
7.	05424	2	5/16" External Tooth Washer
8.	05431	1	Bleeder - Replacement

9.	SB10961-95	1	Shoe Guide
10.	SB9789	4	Cup - Shoe Hold Down
11.	05983	2	Spring - Shoe Hold Down
12.	SB9786	2	Spring - Shoe
13.	SB23324	1	Adjusting Screw Assembly
14.	SB24765	1	Spring - Adjusting Screw
15.	SB9788	2	#6 Hold Down Pin
-	SB15845	1	Wheel Cylinder Repair Kit (includes spring, cup and boot)

Please order replacement parts by PART NO. and DESCRIPTION.

RUNNING GEAR BRAKE LINE PARTS BREAKDOWN

**Note: Front brakes are optional
on the 550 bushel running gear.**



BRAKE LINE PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	05979	1	#6 x 52" Rubber Line
*2.	SB7900	1	Brake Tee
*3.	SB508	1	3/16" x 8" Steel Brake Line
*4.	SB7785	2	Brass Tee
*5.	SB520	1	3/16" x 20" Steel Brake Line
*6.	SB541	1	3/16" x 41" Steel Brake Line
*7.	05982	2	18" Rubber Brake Hose
*8.	SB7764	2	Rubber Brake Line Clip
9.	SB553	3	3/16" x 53" Lg. Steel Line
10.	02549	10	Rubber Protector (for steel lines)
11.	SB13H66	1	Lg. Rubber Line w/ solid F. end (2x)
12.	SB580	1	3/16" x 80" Steel Brake Line
13.	02802	2	5/16"-18 UNC Nylon Insert Locknut
14.	B64 H	1	Hose Clamp

Please order replacement parts by **PART NO.** and **DESCRIPTION**

*** Optional front brakes on 550 bushel wagon.**

1. Assemble the running gear.
 2. Mount the Rear Brass Tee (#4) onto the bolt welded to the top of the rear bolster frame using one 5/16" nylon insert locknut (#13).
 3. Next attach the 52" Rubber Line (#1) to the orifice fitting on the master cylinder (see page 8).
 4. Attach Brake Tee (#2) to the 52" Rubber Brake Hose (#2). Attach the 53" Steel Brake Line (#9) to the Brake Tee (#2), and bend the 53" Steel Line (#9) around the front bolster frame to fit (as shown).
- NOTE: When bending steel lines, form around a 3/4" diameter pin, be careful not to make the bend too sharp or line failure will occur.
5. Attach 8" Steel Brake Line (#3) to Brake Tee (#2), and to Brass Tee (#4). Attach 20" and 41" Steel Brake Lines (#5 & #6) to Brass Tee (#4). Attach 18" Rubber Brake Hose (#7) to lines #5 and #6 and to Front Brake Clusters (Refer To Diagram Above). Now attach the rubber Brake Line Clips (#8).

6. Assemble 53" Rear Steel Lines (#9) to the brake cluster first. Then bend around the top of the rear bolster frame and attach to the Rear Brass Tee (#4) as shown. Now attach 80" Steel Lines (#12) to center of outlet on Brass Tee (#4) along reach pipe.
7. Assemble 12" Rubber Line (#11) between the 80" Steel Line (#12), and the 53" Steel Front Brake Line (#9) allowing some slack. Hold 80" line in place with clamp (#14).
8. Put Rubber Line Protectors (#10) around steel lines at clips and bend clips down.



WARNING: To Prevent Serious Injury or Death

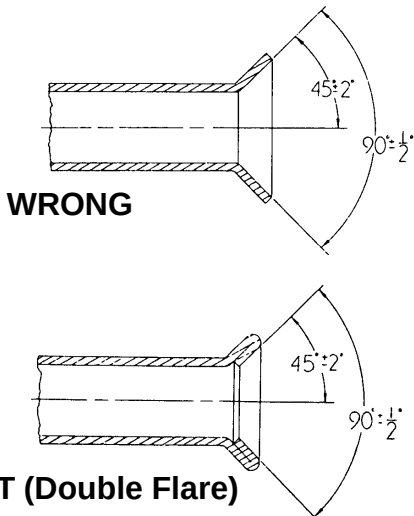
Saltwater, granular fertilizers and other corrosive materials are destructive to metal. To prolong the life of a braking system used under corrosive conditions, we recommend that the actuator be flushed periodically with a high pressure water hose. Be sure to re-grease bearings and oil all moving parts after the unit has dried. At the end of the season, when unit is to be stored, remove the brake drums and clean inside the brakes. Pack wheel bearings before drum is installed.

Backplate Installation

Mount the backplate to the spindle flange. In mounting the brake, be sure the hydraulic wheel cylinder is at the top. Brakes are also marked as “RIGHT” and “LEFT”. The brake designated as “LEFT” travels on the driver’s side of the road.

Brake Line Installation

Use care in forming tubing to avoid sharp bends or kinks. Use double flare steel tubing to assure tight leakproof connections. This must be done by a certified brake shop. Anchor all hydraulic lines at two foot intervals to prevent chafing and vibration. Use hydraulic rubber hose at points of flexing. Anchor hose ends to avoid stress on tubing.



Brake Adjustment

Before removing the ground stand jacks, adjust the brakes. Uni-servo brakes must be adjusted periodically to assure having brakes when they are applied. Insert a brake adjusting tool or a screwdriver into the slotted hole. With the handle up and the bit down and against the adjusting nut, pull down on the handle. While spinning the wheel adjust the cog wheel up until you cannot rotate the wheel forward. Then back off the adjusting wheel twenty notches.

ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.

Brake Drum Maintenance

Brake drums must be reground if abnormal wear is found, such as brake shoe hitting brake drum once lining is gone, rivets hitting brake drums and or brake drums out of round. **NOTE:** Maximum diameter allowed 13.060"

Brake Set-up

1. Attach brake line to master cylinder outlet. Make sure all connections are tight.
2. Fill the master cylinder from a sealed container of DOT 3 or 4 brake fluid. A pressure type brake bleeder may be used. If one is not available, you can bleed the system manually as follows.
3. After the master cylinder has been filled, remove the flat spring behind the emergency lever. Pull forward on the lever to pump the master cylinder. Use short strokes until bubbling stops in the master cylinder.

Bleed the rear axle first. Install bleeder hose on the bleeder valve on the first wheel with other end of the hose in a clear container partially filled with brake fluid.

Loosen the bleeder valve one turn and pump the master cylinder until the air bubbles stop coming out of the hose in the glass container, then close the bleeder valve and repeat the process on the other wheels. (Watch the fluid level in the master cylinder and refill so level does not fall below 1/2 full). Refill master cylinder every 4 or 5 strokes. Dispose of contaminated brake fluid according to local regulations.

4. After bleeding is completed, refill the master cylinder and put the filler cap on securely. Replace the flat spring behind the emergency lever.

To test the brakes use a wrench or vise grip and clamp onto the top of the emergency lever to lengthen it. Pull lever forward until lever locks on the second click. The lever should be approximately straight up and down. Now try to rotate each of the four wheels in a forward rotation. You should not be able to rotate the wheels forward. If you can, then release the emergency lever by wedging a screwdriver under the flat spring behind the lever and set each wheel brake adjustment up 2 or 3 notches. Then repeat the test procedure.

Hitching The Wagon

5. Be sure Pin and hitch rating is equal to or greater than the wagon GVWR.
6. Connect the emergency chain hook to towing vehicle.
7. If the emergency brake lever is accidentally applied while unhitching, release the lever by pulling it forward and with a screwdriver lift up the front of the flat spring until it releases the lever. Many times these parts are damaged when this happens. An inspection of the lever, flat spring, and chain with S-hooks is required and any damaged parts must be replaced.

Replacing The Emergency Lever

Step one: Remove the lever guide and flat spring. Take the S-hook off the lever, take the lever out from the inside.

Step two: Install the new lever from the inside and up through the slot. Replace the new flat spring and the lever guide. Replace the push rod and master cylinder and new gasket.

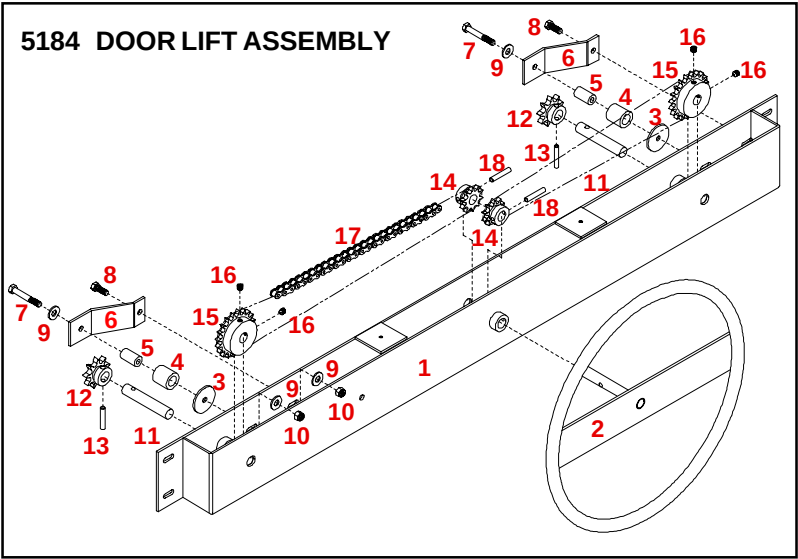
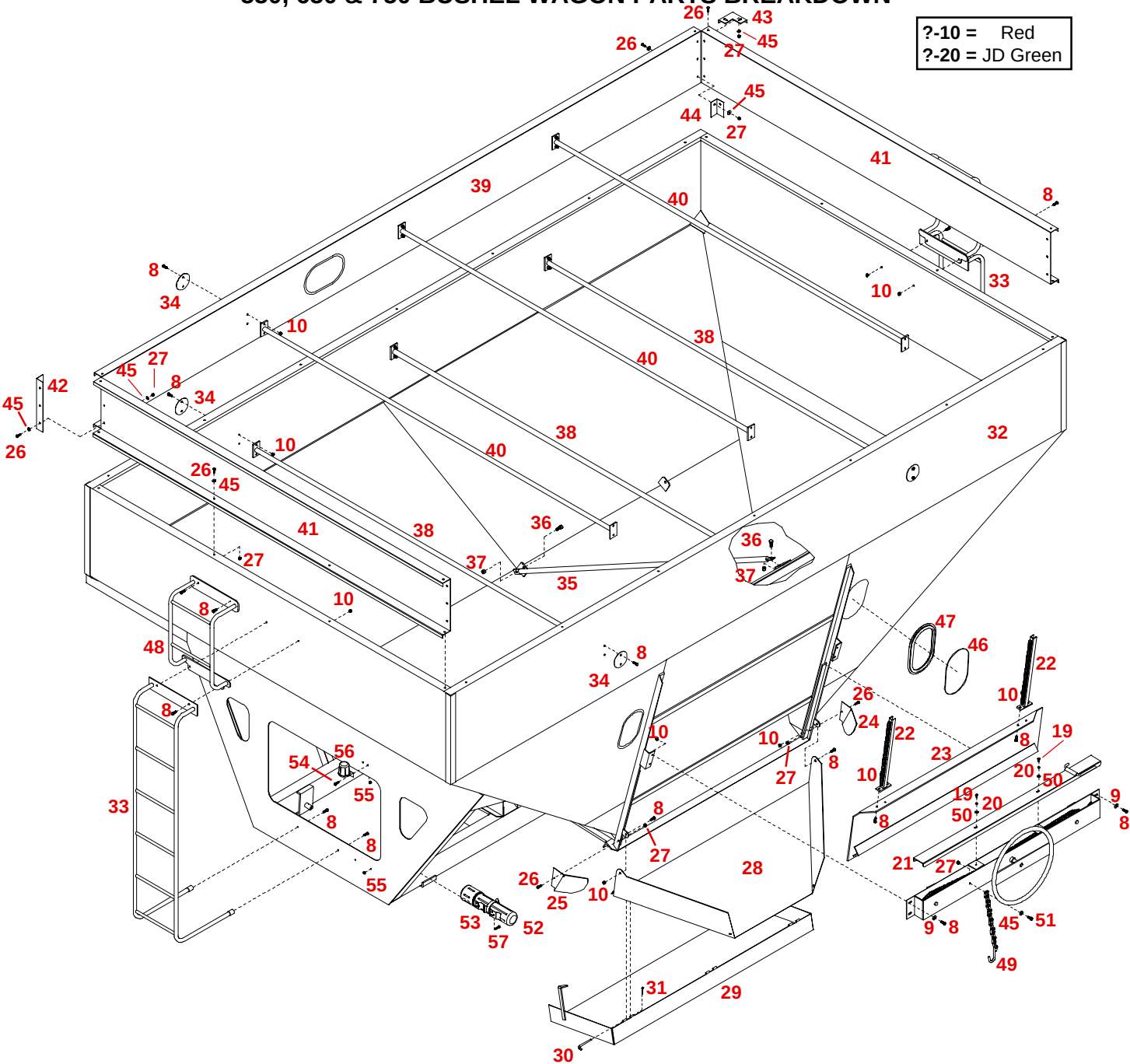
Step three: Take the new chain and fasten the S-hook to the lever by squeezing the hook shut with a pliers. Check the master cylinder and fill with DOT 3 or 4 brake fluid.

Step four: Re-bleed brake system.

MAINTENANCE

1. Before towing check to be sure master cylinder is full of brake fluid and check lines for leaks. Inspect the actuator for bent or worn parts. Replace parts if necessary. Make sure the actuator mounting bolts are tight.
2. Periodically check braking quality, as described above. Failure to do so can result in loss of braking.
3. If units are used in corrosive conditions the actuator and wheels should be washed out with high pressure water. When actuator parts are dry, oil all moving parts.

550, 650 & 750 BUSHEL WAGON PARTS BREAKDOWN



ASSEMBLY INSTRUCTIONS

MOUNTING THE SIDE BRACES, EXTENSIONS

1. Mount the Front, Back, and Side Extensions (#41 & 39) loosely to the box using twenty-two 5/16" x 3/4" bolts (#26), twenty-two 5/16" nylon locknuts (#27), and forty-four 5/16" flatwashers (#45).
2. Mount the Outside Corner (#42) to the outside of the extensions using six 5/16" x 3/4" bolts (#26) and six 5/16" nylon locknut (#27). The bottom two bolts must also hold the Inside Corner (#44) on the inside of the box as shown.
3. Mount the Corner Filler Cap (#43) under the lip on the outside of the extensions using two 5/16" x 3/4" bolts (#26) two 5/16" flatwashers (#45) and two 5/16" nylon locknuts (#27).
4. Mount the inside Angle Braces (#35) to the inside of the box as shown using six 1/2" x 1-1/4" bolts (#36) and six 1/2" nylon locknuts (#37).
5. Mount the inside Side Braces (#38 & 40) to the box (#32) and side extensions (#39) with back up washers (#34) on the outside as shown using twenty-four 3/8" x 1-1/4" bolts (#8) and twenty-four 3/8" nylon locknuts (#10).

NOW TIGHTEN ALL BOLTS.

MOUNTING THE LADDERS

1. Mount the top of the ladders (#33) to the gravity flow box using four 3/8" x 1-1/4" bolts (#8) and four 3/8" nylon locknuts (#10) as shown. Bolt the bottom of the ladders (#33) to the subframe using two 3/8" x 1-1/4" bolts (#8).

INSTALLING THE BOX, DOOR LIFT CHANNEL, DOOR LIFT WHEEL ASSEMBLY AND TRANSPORT CHAIN

1. Mount the Door Lift Channel (#22), with the roller chain to your left side when you are facing the unloading side of gravity box, to the Door (#23) using four 3/8" x 1-1/4" bolts (#8), four 3/8" nylon locknuts (#10). Place the unloading door into the rails of the box.
2. Slide the door lift wheel mount (Sub. Assembly #5184) over the door lift channels (#22) and bolt it to the gravity box using four 3/8" x 1-1/4 bolts (#8), four 3/8" flatwashers (#9), and four 3/8" nylon lock nuts (#10).
3. **IMPORTANT** Tighten all mounting bolts just enough to limit movement. Adjust by raising and lowering the door, after final adjustment counter sink set screws in sprocket holes by drilling 1/16" to 1/8" deep using a 1/4" drill bit. Then tighten bolts and setscrews accordingly to prevent the door from binding.
4. Bolt the transport chain (#49) to the door lift wheel mount (#1) using one 5/16" x 1" bolt (#52), one 5/16" flatwasher (#45), and one 5/16" nylon locknut (#27).
5. Mount the Door Lift Wheel Mount Cover (#18) using two 1/4" x 3/4" slotted truss head bolts (#19) and two 1/4" lockwashers (#20). Adjust cover so door lock will work properly.

INSTALLING THE DELIVERY CHUTE

1. Assembly of the chute should be done after mounting the box on the running gear. Mount the Chute Brackets (#24 & 25) to the gravity flow box using two 5/16" x 3/4" bolts (#26) and two 5/16" nylon locknuts (#27).
2. Mount the Unloading Chute (#28) to the box using two 3/8" x 1-1/4" bolts (#8) and two 3/8" nylon lock nuts (#10). When tightening be certain the chute moves up and down freely.
3. Slide the Center Dump Chute (#29) under the box, hook the "L" shaped brackets over the rods extending from the frame to the under side of the box. Raise the center dump chute and align hinges. Slide the Center Dump Pins (#30) through the hinges and hold in place using three 3/32" x 3/4" cotter pins (#31). **Note:** Check all bolts and nuts to ensure proper tension or torque.

550, 650 & 750 BUSHEL WAGON PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
5184-30 Door Lift Assembly			
1.	02025-30	1	Door Lift Wheel Mount
2.	02024-30	1	Door Lift Wheel
3.	09552-95	2	2" O.D. x 3/8" I.D. Washer
4.	01115	2	1-1/4" O.D. x 3/4" I.D. Bushing
5.	01114	2	3/4" O.D. x 3/8" I.D. Bushing
6.	01243-30	2	Roller Brace Bracket
7.	00082	2	3/8"-16UNC x 2-1/2" Hex Head Bolt Gr.5
8.	00907	2	3/8"-16UNC x 1" Hex Head Bolt Gr.5
9.	00059	6	3/8" Flatwasher
10.	02592	4	3/8"-16UNC Nylon Insert Locknut
11.	02023	2	3/4" Dia. x 4-1/4" Lg. Pin
12.	01332-30	2	9 Tooth Sprocket
13.	02849	2	5/16" x 1-3/8" Roll Pin
14.	02028	2	10 Tooth Sprocket
15.	02026	2	20 Tooth Sprocket
16.	00789	4	3/8"-16UNC x 3/8" Socket Set Screw
17.	04976	1	109 Links and Connecting Link (#40 chain)
--	04975	1	95 Links and Connecting Link (#40 chain)
--	04829	2	#40 Connecting Link
18.	03096	2	1/4" x 1-1/4" Roll Pin
-	04642	6	1/4" Grease Zerk (not shown)
8.	00523	46	3/8"-16UNC x 1-1/4" Hex Head Bolt Gr.5
9.	00059	4	3/8" Flatwasher
10.	02592	46	3/8"-16UNC Nylon Insert Locknut
19.	01906	2	1/4"-20UNC x 3/4" Slotted Truss Head Bolt
20.	00057	2	1/4" Lockwasher
21.	02030-30	1	Door Lift Wheel Mount Cover
22.	01108-30	2	Door Lift Channel
23.	02021-?	1	Unloading Door
24.	05257-30	1	Right Chute Deflector Bracket
25.	02017-30	1	Left Chute Deflector Bracket
26.	01263	70	5/16"-18UNC x 3/4" Hex Head Bolt Gr.5
27.	02802	71	5/16"-18UNC Nylon Insert Locknut
28.	02018-30	1	Unloading Chute
-	07733-30	-	Short Unloading Chute (Optional)
29.	02019-30	1	Center Dump Chute
30.	02020-95	3	Center Dump Pin
31.	01092	3	3/32" x 3/4" Cotter Pin
32.	07369-?	1	Gravity Flow Box
33.	02015-30	2	Ladder
34.	01106-30	12	Extension and Box Washer
35.	07373-30	3	Inside Box Cross Brace - 57-3/4"
36.	00967	6	1/2"-13UNC x 1-1/4" Hex Head Bolt Gr. 5
37.	02178	6	1/2"-13UNC Nylon Insert Locknut
38.	07371-30	3	Box Brace Bar - 113-1/2"
39.	07739-30	2	Side Extension - 187" (550 bu.)
-	02012-30	2	Side Extension - 187" (650 bu.)
-	07390-30	2	Side Extension - 187" (750 bu.)
40.	07372-30	3	Extension Brace Bar - 108-3/4"
41.	07740-30	2	Front and Back Extension - 109" (550 bu.)
-	07370-30	2	Front and Back Extension - 109" (650 bu.)
-	07391-30	2	Front and Back Extension - 109" (750 bu.)
42.	07741-30	4	Outside Corner - 5-1/2" (550 bu.)
-	02045-30	4	Outside Corner - 13-1/2" (650 bu.)
-	07433-30	4	Outside Corner - 23-1/2" (750 bu.)
43.	01105-30	4	Corner Filler Cap
44.	01104-30	4	Inside Corner
45.	00004	69	5/16" Flatwasher
46.	07276	2-4	Window (550 Bu. has 2, 650-750 Bu. has 4)
47.	07310	2-4	Rubber Window Seal (33-1/2" long)
48.	07441-30	2	Extension Ladder for 750 Wagon
49.	02022	1	Chute Transport Chain
50.	00214	2	1/4" Flatwasher
51.	02990	1	5/16"-18 UNC x 1" Hex Head Bolt Gr. 5
52.	10241	1	Operators Manual Cannister
53.	10242	1	Cannister Bracket
54.	04055	2	1/4"-13 UNC x 1" Hex Head Bolt Gr. 5
55.	02772	4	1/4"-13 UNC Nylon Insert Locknut
56.	10277	1	Electrical Plug Holder
57.	00092	2	1/4"-13 UNC x 1/2" Hex Head Bolt Gr. 5

Please order replacement parts by **PART NO. ,**
DESCRIPTION and COLOR.

MAINTENANCE AND GENERAL OPERATIONS OF GRAVITY WAGON

All users of this equipment should read, understand, and follow these instructions to help ensure safe and efficient operation of the equipment.

* Never overload wagon. The rating of the GF550 gear is 36,000 lbs. or the rating of the tires, whichever is less. The GF650 gear rating is 44000 lbs. or the rating of the tires, whichever is less. The GF750 gear has a rating of 48000 lbs. or the rating of the tire, whichever is less. Overloading wagon is dangerous and can cause extensive damage to both the box and running gear.

* Never add more sideboards or extensions to the gravity box, beyond the standard factory manufactured parts, as the box is not designed to handle the added weight.

* Check box periodically for cracks in welds and other structural damage. Have cracked welds fixed immediately. Failure to do so could result in extensive damage to the gravity box and thus greatly reduce life of box.

* When pulling gravity box and running gear, be sure that it is fastened securely to tractor. Also connect the emergency brake chain to towing vehicle and be sure lighting is connected and working properly.

* Be sure to read all warnings, caution, and important labels on equipment, they are designed for your safety and for longer life of equipment.

* Periodically check all bolts and nuts to ensure proper tension or torque. Torque lug nuts daily.

* Grease all zerks before each use using a good quality lubricant.

* Before towing be sure master cylinder is full of brake fluid and check lines for leaks. Inspect the actuator for bent or worn parts. Replace parts if necessary. Make sure the actuator mounting bolts are tight.

* Periodically check braking quality. If you think they are a little soft, check the movement on the actuator. If it moves more than 7/8", the brake shoes need to be adjusted. Failure to do so can result in loss of braking.

* If units are used in corrosive conditions the actuator and wheels should be washed out with high pressure water. When actuator parts are dry, oil all moving parts and repack wheel bearing.

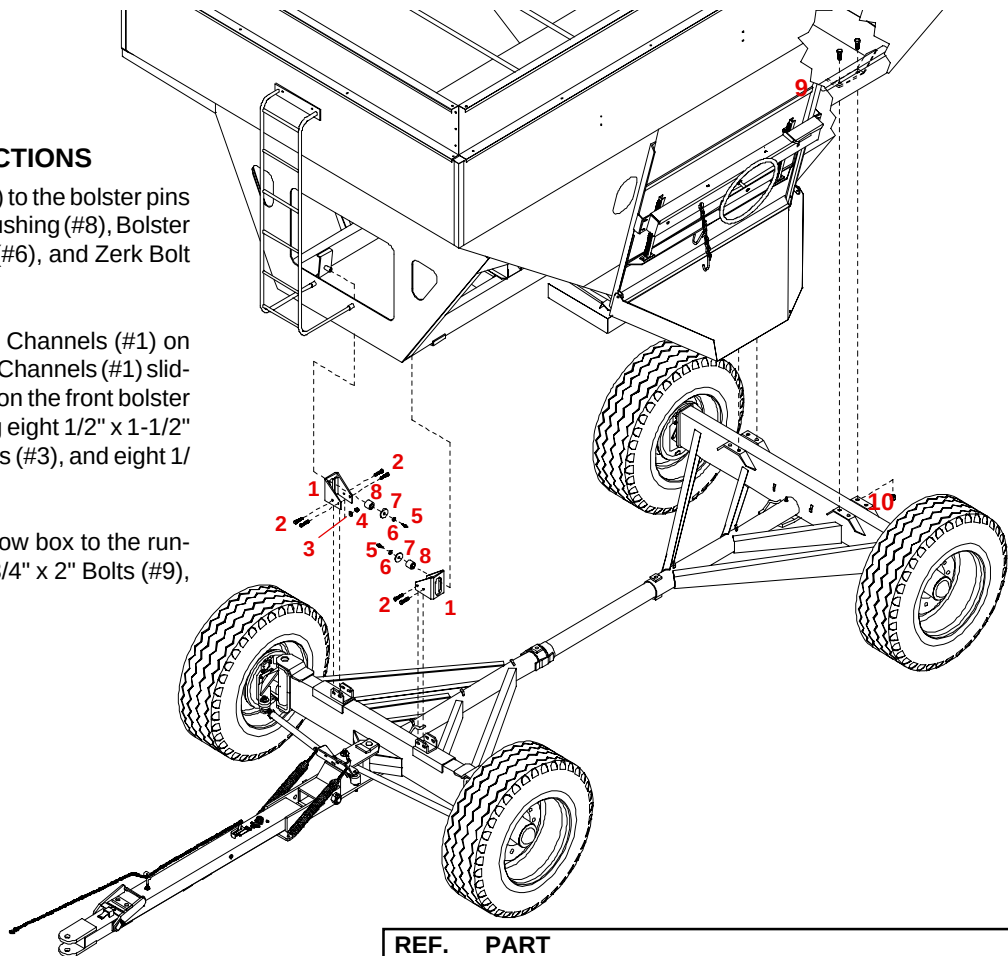
* Do not exceed 40 P.S.I. when using truck tires on the wagon.

Periodic servicing of this unit will greatly prolong its usable life.

MOUNTING THE WAGON TO THE RUNNING GEAR ASSEMBLY

ASSEMBLY INSTRUCTIONS

1. Attach the Bolster Channels (#1) to the bolster pins on the subframe using Bolster Bushing (#8), Bolster Washer (#7), 1/2" Lockwasher (#6), and Zerk Bolt (#5).
2. Now Place box with the Bolster Channels (#1) on the running gear with the Bolster Channels (#1) sliding over the mounting channels on the front bolster frame (as shown). Secure using eight 1/2" x 1-1/2" Bolts (#2), eight 1/2" Flatwashers (#3), and eight 1/2" Locknuts (#4).
3. Secure the rear of the gravity flow box to the running gear as shown using four 3/4" x 2" Bolts (#9), and four 3/4" Locknuts (#10).



PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	07384-30	2	Bolster Channel
2.	01254	8	1/2 - 13 UNC x 1-1/2" Hex Head Bolt
3.	00085	8	1/2" Flatwasher
4.	02178	8	1/2" - 13 UNC Nylon Insert Locknut

REF. NO.	PART NO.	QTY.	DESCRIPTION
5.	05570	2	Zerk Bolt
6.	00084	2	1/2" Lockwasher
7.	07385-95	2	Bolster Washer
8.	07386-95	2	Bolster Bushing
9.	01235	4	3/4" - 10 UNC x 2" Hex Head Bolt
10.	02961	4	3/4" - 10 UNC Nylon Insert Locknut

Please order replacement parts by **PART NO.**, **DESCRIPTION** and **COLOR**.

This diagram illustrates the exploded view of the upper cabinet assembly. The components are numbered as follows:

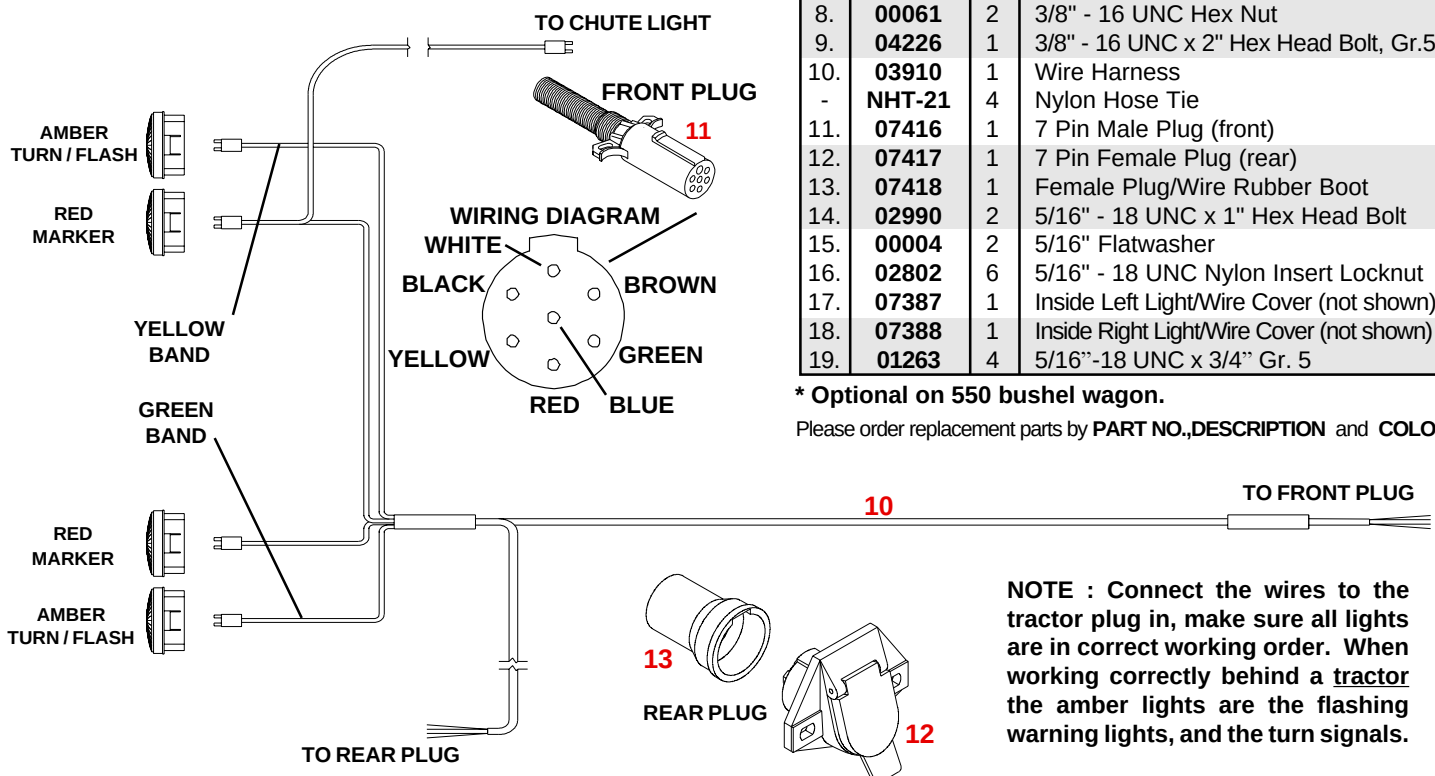
- 1**: Cabinet door
- 2**: Cabinet drawer
- 3**: Cabinet drawer front
- 4**: Cabinet door hinge
- 5**: Cabinet door hinge pin
- 6**: Cabinet door hinge pin
- 7**: Cabinet door hinge pin
- 8**: Cabinet door hinge pin
- 9**: Cabinet door hinge pin
- 10**: Cabinet door hinge pin
- 11**: Cabinet door hinge pin
- 12**: Cabinet door hinge pin
- 13**: Cabinet door hinge pin
- 14**: Cabinet door hinge pin
- 15**: Cabinet door hinge pin
- 16**: Cabinet door hinge pin
- 17**: Cabinet door hinge pin
- 18**: Cabinet door hinge pin
- 19**: Cabinet door hinge pin

Existing Bolts and Washers

- ## LIGHT KIT PARTS LIST

REF. NO.	PART NO.	QTY.	DESCRIPTION
1.	05447	4	Light Mounting Grommet
2.	05446	2	4" Red Light
3.	05260	2	4" Amber Light
*4.	07389	1	Door Light Mount Bracket
*5.	07436	1	Door Light w/ Toggle Switch and Mount
6.	02467	1	3/8" - 16 UNC x 1" Carriage Bolt
7.	00060	2	3/8" Lockwasher
8.	00061	2	3/8" - 16 UNC Hex Nut
9.	04226	1	3/8" - 16 UNC x 2" Hex Head Bolt, Gr.5
10.	03910	1	Wire Harness
-	NHT-21	4	Nylon Hose Tie
11.	07416	1	7 Pin Male Plug (front)
12.	07417	1	7 Pin Female Plug (rear)
13.	07418	1	Female Plug/Wire Rubber Boot
14.	02990	2	5/16" - 18 UNC x 1" Hex Head Bolt
15.	00004	2	5/16" Flatwasher
16.	02802	6	5/16" - 18 UNC Nylon Insert Locknut
17.	07387	1	Inside Left Light/Wire Cover (not shown)
18.	07388	1	Inside Right Light/Wire Cover (not shown)
19.	01263	4	5/16"-18 UNC x 3/4" Gr. 5

Please order replacement parts by **PART NO., DESCRIPTION** and **COLOR**.



NOTE : Connect the wires to the tractor plug in, make sure all lights are in correct working order. When working correctly behind a tractor the amber lights are the flashing warning lights, and the turn signals.



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